WHAT IS CLAIMED IS:

1. An isolated or recombinant nucleic acid comprising

a nucleic acid sequence having at least 75% sequence identity to SEQ ID NO:1 or a nucleic acid encoding a polypeptide, wherein the polypeptide has a sequence as set forth in SEQ ID NO:2; or

a nucleic acid sequence having at least 75% sequence identity to SEQ ID NO:3 or a nucleic acid encoding a polypeptide, wherein the polypeptide has a sequence as set forth in SEQ ID NO:4; or

a nucleic acid sequence having at least 85% sequence identity to SEQ ID NO:5 or a nucleic acid encoding a polypeptide, wherein the polypeptide has a sequence as set forth in SEQ ID NO:6; or

a nucleic acid sequence having at least 75% sequence identity to SEQ ID NO:7 or a nucleic acid encoding a polypeptide, wherein the polypeptide has a sequence as set forth in SEQ ID NO:8 .

2. The nucleic acid of claim 1,

wherein the sequence identity to SEQ ID NO:1 is at least 85%;

wherein the sequence identity to SEQ ID NO:3 is at least 85%;

wherein the sequence identity to SEQ ID NO:5 is at least 90%;

wherein the sequence identity to SEQ ID NO:7 is at least 85%.

3. The nucleic acid of claim 2,

wherein the sequence identity to SEQ ID NO:1 is 95%;

wherein the sequence identity to SEQ ID NO:3 is 95%;

wherein the sequence identity to SEQ ID NO:5 is 95%;

wherein the sequence identity to SEQ ID NO:7 is 95%.

4. The nucleic acid of claim 3, wherein the nucleic acid comprises a sequence as set forth in SEQ ID NO:1; SEQ ID NO:3; SEQ ID NO:5; or SEQ ID NO:7.

5. An isolated or recombinant nucleic acid comprising a nucleic acid sequence having at least 75% sequence identity to SEQ ID NO:9, SEQ ID NO:10; SEQ ID NO:11; SEQ ID NO:13; SEQ ID NO:14, SEQ ID NO:15 or SEQ ID NO:16; or has a sequence as set forth in SEQ ID NO:12.

6. The nucleic acid of claim 5, wherein the sequence identity to SEQ ID NO:9, SEQ ID NO:10; SEQ ID NO:11; SEQ ID NO:13; SEQ ID NO:14, SEQ ID NO:15 or SEQ ID NO:16 is at least 85%.

7. The nucleic acid of claim 6, wherein the sequence identity to SEQ ID NO:9, SEQ ID NO:10; SEQ ID NO:11; SEQ ID NO:13; SEQ ID NO:14, SEQ ID NO:15 or SEQ ID NO:16 is at least 95%.

8. The nucleic acid of claim 7, wherein the nucleic acid has a sequence as set forth in SEQ ID NO:9, SEQ ID NO:10; SEQ ID NO:11; SEQ ID NO:13; SEQ ID NO:14, SEQ ID NO:15 or SEQ ID NO:16.

9. An isolated or recombinant nucleic acid which specifically hybridizes to a nucleic acid comprising a sequence as set forth in SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15 or SEQ ID NO:16 under stringent conditions, wherein the stringent conditions include a wash step comprising a wash in 0.2X SSC at a temperature of about 65°C for about 15 minutes.

10. The nucleic acid of claim 1, claim 5, or claim 9, wherein the nucleic acid is between about 15 and about 200 residues in length; is between about 25 and about 100 residues in length; or is between about 35 and about 75 residues in length.

11. An expression vector comprising at least one nucleic acid operably linked to a promoter, wherein the nucleic acid comprises a sequence as set forth in claim 1, claim 5 or claim 9.

12. The expression vector of claim 11, wherein the nucleic acid is operably linked to the promoter in the sense orientation.

13. The expression vector of claim 11, wherein the nucleic acid is operably linked to the promoter in the antisense orientation.

14. A transformed cell comprising the nucleic acid of claim 1, claim 5 or claim 9.

15. A transformed cell comprising the expression vector of claim 11.

16. A polymerase chain reaction (PCR) primer pair that can amplify a nucleic acid sequence as set forth in claim 1, claim 5, or claim 9, or a subsequence thereof, under *in situ* or *in vitro* conditions.

17. An isolated or recombinantly expressed polypeptide, said polypeptide encoded by nucleic acid which specifically hybridizes to a nucleic acid comprising a sequence as set forth in SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, or SEQ ID NO:14, under stringent conditions, wherein the stringent conditions include a wash step comprising a wash in 0.2X SSC at a temperature of about 65°C for about 15 minutes.

18. An isolated or recombinantly expressed polypeptide having 75% sequence identity to SEQ ID NO:2, 75% sequence identity to SEQ ID NO:4, having 85% sequence to SEQ ID NO:6 or 75% sequence identity to SEQ ID NO:8.

19. The isolated or recombinantly expressed polypeptide of claim 18, wherein the polypeptide has 90% sequence identity to an amino acid sequence as set forth in SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8.

20. The isolated or recombinantly expressed polypeptide of claim 19, wherein the polypeptide has an amino acid sequence as set forth in SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8.

21. The isolated or recombinantly expressed polypeptide of claim 17 or claim 18, wherein the polypeptide is between about 15 and about 200 residues in length; is between about 25 and about 100 residues in length; or is between about 35 and about 75 residues in length.

22. An immunogenic peptide comprising a subsequence of a polypeptide as set forth in claim 17 or claim 18.

23. The immunogenic peptide of claim 22 comprising peptide from about residue 1 to residue 92 of SEQ ID NO:2; about residue 1 to 124 of SEQ ID NO:4; about residue 1 to 48 of SEQ ID NO:6; or about residue 1 to 81 of SEQ ID NO:8.

24. A fusion protein comprising a polypeptide as set forth in claim 17 or claim 18 and a heterologous sequence.

25. An isolated or recombinant antibody or binding fragment thereof which specifically binds to a polypeptide as set forth in claim 17 or claim 18 or an immunogenic fragment thereof, as set forth in claim 22.

26. A monoclonal antibody that specifically binds to a polypeptide as set forth in claim 17 or claim 18 or an immunogenic fragment thereof, as set forth in claim 22.

27. A hybridoma cell line comprising the monoclonal antibody of claim 26.

28. A kit for detecting the presence of nucleic acid sequences associated with GCA in a sample comprising a nucleic acid as set forth in claim 1, claim 5 or claim 9, wherein the nucleic acid of the sample detectably hybridizes to a nucleic acid as set forth in claim 1, claim 5 or claim 9 under *in situ* or *in vitro* conditions.

29. A kit for detecting the presence of nucleic acid sequences associated with GCA in a sample comprising an amplification primer pair that can amplify a nucleic acid in the sample having a sequence as set forth in claim 1, claim 5 or claim 9 under *in situ* or *in vitro* conditions.

30. A kit for detecting the presence of polypeptide sequences associated with GCA in a sample comprising an antibody as set forth in claim 25 or claim 26.

31. A kit for detecting the presence of human antibodies associated with GCA in a sample comprising a polypeptide as set forth in claim17 or 18 or a peptide as set forth in claim 22.

32. The kit of claim 31, wherein the polypeptides or peptides are immobilized and the kit further comprises a non-human antibody or an antisera that specifically binds to a human antibody under an *in situ* or *in vitro* condition.

33. An array of oligonucleotide probes immobilized on a solid support comprising a nucleic acid as set forth in claim 1, claim 5 or claim 9.

34. A method for diagnosing or determining predisposition for GCA comprising the following steps:

(a) providing an antibody that specifically binds to a polypeptide associated with GCA, wherein the antibody has the same specificity as an antibody as set forth in claim 25 or claim 26; or, a nucleic acid as set forth in claim 1, claim 5 or claim 9, wherein the nucleic acid detectably hybridizes to a nucleic acid as set forth in claim 1, claim 5 or claim 9 under *in situ* or *in vitro* conditions;

(b) providing a tissue or serum or urine sample;

(c) contacting the antibody or nucleic acid with the sample; and

(d) detecting whether the antibody specifically binds to a polypeptide or peptide in the sample or the nucleic acid hybridizes to a nucleic acid in the sample, wherein the specific binding or hybridization is diagnostic for or determines a predisposition for GCA.

35. A method for diagnosing or determining predisposition for GCA comprising the following steps:

(a) providing a nucleic acid amplification primer pair as set forth in claim 16, wherein the primer pair can amplify a GCA-associated nucleic acid under *in situ* or *in vitro* conditions;

(b) providing a tissue or serum or urine sample;

(c) contacting the primer pair with the sample under amplification reaction conditions; and

(d) detecting whether the primer pair has amplified a nucleic acid in the sample, wherein amplification is diagnostic for or determines a predisposition for GCA.

36. A method for diagnosing or determining predisposition for GCA comprising the following steps:

(a) providing a polypeptide or peptide as set forth in claim 17, claim 18 or claim 22;

(b) providing a tissue or serum or urine sample;

(c) contacting the sample with the polypeptide or peptide under physiologic conditions; and

(d) detecting whether an antibody in the tissue or serum sample specifically binds to a polypeptide or peptide of step (a); wherein binding of the antibody to the polypeptide or peptide is diagnostic for or determines a predisposition for GCA.

37. The method of claim 36, wherein the detection in step (d) is an ELISA assay.

38. A method for isolating nucleic acid sequences associated with GCA comprising the following steps:

(a) providing a first sample from a tissue or fluid specimen from an individual not showing histologic or other signs of GCA and a second tissue sample from a tissue or fluid specimen from an individual showing histologic or other signs of GCA;

(b) isolating the nucleic acid from both samples;

(c) subtracting nucleic acid from the first sample from the second sample to isolate nucleic acid only present in the second sample, wherein the isolated nucleic acid from the second sample is associated with GCA-affected tissue and not normal tissue.

39. The method of claim 38, wherein the first and the second tissue sections are each taken from a "skip" lesion of a temporal artery of a GCA patient.

40. A method for isolating lymphocytes involved in the pathogenesis of GCA comprising the following steps:

(a) incubating a polypeptide or peptide as set forth in claim 17, claim 18 or claim 22 with a plurality of adherent, irradiated antigen presenting cell cultures;

(b) contacting a sample of isolated lymphocytes from a GCA patient with the polypeptide-incubated adherent antigen presenting cell cultures of step (a);

(c) culturing the cells contacted in step (b) for sufficient time to allow for cytokine secretion or cell proliferation; and

(d) detecting which cell culture comprises proliferating cells or cells secreting cytokines, wherein proliferation or secretion of cytokines indicates the isolated lymphocytes are involved in the pathogenesis of GCA.

41. The method of claim 40, wherein the lymphocytes are T cells and the cells are cultured for about 2 to 5 days.

42. A method for generating antibodies for the diagnosis or treatment of GCA comprising administering a polypeptide or peptide as set forth in claim 17, claim 18 or claim 22 in amounts sufficient to generate an immune response.